Multifunctional Glow Discharge Analyzer for Spacecraft Monitoring, Phase I

Completed Technology Project (2010 - 2010)

Project Introduction

Makel Engineering, Inc. (MEI) and Penn State University (PSU) propose to develop a highly sensitive spectrometer based on glow discharge emission for the detection/classification of gas and aerosol species in post-fire cleanup scenarios. This device would complement technology that is already under development for intelligent fire detection and would provide a robust system to simultaneously monitor the reduction of carbon monoxide and other toxic species by fire cleanup filtration systems. MEI and Dr. Randy Vander Wal of PSU are actively developing a glow-discharge based detection system for DoD (NAVAIR) that will be extremely compact (<1 lb.) and provide highly sensitive detection of explosives and the potential to detect a broad range of chemical and biological agents. This system is a microhollow glow discharge-based electronic sniffer (MHGD Sniffer) and provides the basis for the proposed NASA effort.

Primary U.S. Work Locations and Key Partners

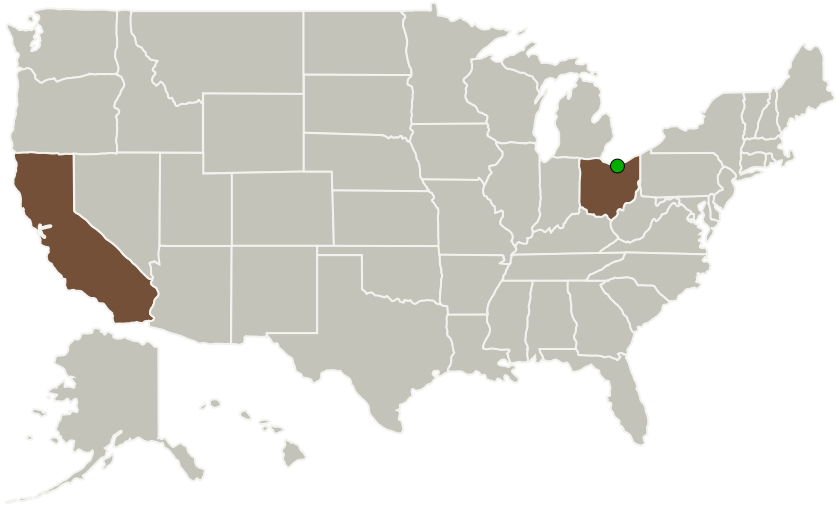

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Table of Contents

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Organizations Performing Work	Role	Type	Location
Makel Engineering, Inc.	Lead Organization	Industry Small Disadvantaged Business (SDB)	Chico, California
Glenn Research Center(GRC)	Supporting Organization	NASA Center	Cleveland, Ohio

Primary U.S. Work Locations	
California	Ohio

Project Transitions

January 2010: Project Start

July 2010: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/139265)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Makel Engineering, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

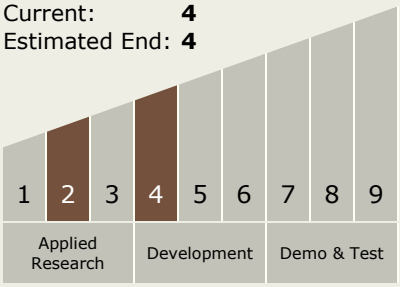
Carlos Torrez

Principal Investigator:

Benjamin Ward

Technology Maturity (TRL)

Start: **2**
Current: **4**
Estimated End: **4**



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Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
  - TX06.4 Environmental Monitoring, Safety, and Emergency Response
    - TX06.4.2 Fire: Detection, Suppression, and Recovery

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System